

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1 1. (Previously Presented) A computer system, comprising:
2 a plurality of computer processor cores in which at least two of the computer processor
3 cores are heterogeneous, and wherein the plurality of computer processor cores execute the same
4 instruction set; and
5 a performance measurement and transfer mechanism configured to move a plurality of
6 executing computer processing jobs amongst the plurality of computer processor cores by
7 matching requirements of the plurality of executing computer processing jobs to processing
8 capabilities of the computer processor cores.
- 1 2. (Currently Amended) The computer system of claim 1, further comprising:
2 at least one of an operating system hosted on the plurality of computer processor cores,
3 firmware, and ~~special-purpose~~ hardware that includes the performance measurement and transfer
4 mechanism, and the at least one of the operating system, firmware, and ~~special-purpose~~ hardware
5 is configured to provide for a periodic test to determine relative performance of different jobs on
6 different ones of the computer processor cores.
- 1 3-6. (Canceled)

1 7. (Previously Presented) A method for operating multiple processor cores,
2 comprising:

3 obtaining a throughput metric that identifies throughput achieved by a plurality of
4 computer processor cores as a function of workloads running on said computer processor cores,
5 wherein the plurality of computer processor cores are on a single semiconductor die, in which at
6 least two computer processor cores differ in processing capability, and wherein the computer
7 processor cores execute the same instruction set; and

8 transferring individual ones of a plurality of computer processing jobs amongst targeted
9 ones of said plurality of computer processor cores based on the throughput metric.

1 8. (Previously Presented) The method of claim 7, further comprising:

2 providing for a periodic test to determine relative performance of different jobs on
3 different ones of the computer processor cores.

1 9- 14 (Canceled)

1 15. (Original) The method of claim 7, further comprising:

2 associating workloads for execution on specific processor cores based on annotations
3 associated with the computer processing jobs.

1 16. (Canceled)

1 17. (Currently Amended) The computer system of claim 1, further comprising at least
2 one of an operating system hosted on the plurality of computer processor cores, firmware, and
3 ~~special-purpose~~ hardware that includes the performance measurement and transfer mechanism.

1 18. (Previously Presented) The computer system of claim 1, wherein the performance
2 measurement and transfer mechanism is configured to maximize total system throughput.

1 19. (Previously Presented) The computer system of claim 1, wherein the performance
2 measurement and transfer mechanism is configured to transfer the executing computer
3 processing jobs to a new assignment amongst the plurality of computer processor cores, collect
4 performance statistics about execution at the new assignment, and then determine whether to
5 reassign the executing computer processing jobs to different computer processor cores based on
6 the performance statistics collected.

1 20. (Previously Presented) A computer system, comprising:
2 a plurality of computer processor cores in which at least two differ in processing
3 performance, and wherein the plurality of computer processor cores execute the same instruction
4 set; and
5 a performance measurement and transfer mechanism configured to move a plurality of
6 executing computer processing jobs amongst the plurality of computer processor cores based on
7 a measured throughput metric,
8 wherein the performance measurement and transfer mechanism is configured to swap
9 execution of the executing computer processing jobs between the computer processor cores for a
10 period of time, monitor resulting performance, and then build a data structure with relative
11 performances of jobs on different types of computer processor cores.

1 21. (Previously Presented) The computer system of claim 20, wherein the jobs are
2 reassigned based on the relative performances, by assigning jobs that benefited most from large
3 complex processor cores to said large complex processor cores.

1 22. (Previously Presented) The computer system of claim 19, wherein the
2 determination of whether to reassign the jobs to different computer processor cores also is based
3 on at least one of a user-defined metric or a workload-defined metric.

1 23. (Previously Presented) The method of claim 7, wherein the throughput metric
2 comprises a number of instructions per second.

1 24. (Previously Presented) The computer system of claim 1, wherein movement of the
2 executing computer processing jobs is constrained to occur only at operating system time slice
3 intervals.

1 25. (Previously Presented) A method for operating multiple processor cores,
2 comprising:

3 assigning a plurality of computer processing jobs amongst a plurality of computer
4 processor cores, wherein at least two of the computer processor cores differ in size or
5 complexity but execute the same instruction set, and

6 wherein assigning the plurality of computer processing jobs amongst the plurality of
7 computer processor cores comprises matching requirements of the computer processing jobs to
8 processing capabilities of the computer processor cores based on the sizes or complexities of the
9 computer processor cores.

1 26. (Previously Presented) The method of claim 25, further comprising periodically
2 testing to determine relative performance of different jobs on different ones of the computer
3 processor cores.

1 27.-28. (Cancelled)

1 29. (Previously Presented) A method for operating multiple processor cores,
2 comprising:

3 obtaining a throughput metric that identifies throughput achieved by computer processor
4 cores on a single semiconductor die as a function of workloads running on said computer
5 processor cores; and

6 assigning a plurality of computer processing jobs amongst a plurality of computer
7 processor cores based on the throughput metric, wherein at least two of the computer processor
8 cores differ in size or complexity but execute the same instruction set;

9 transferring the computer processing jobs to a new assignment amongst the plurality of
10 computer processor cores;

11 collecting statistics about execution performance of the computer processing jobs at the
12 new assignment;

13 determining whether to reassign the computer processing jobs to different computer
14 processor cores based on the statistics collected; and

15 building a data structure with relative performances of the computer processing jobs on
16 different types of computer processor cores based on the statistics collected.

1 30. (Previously Presented) The method of claim 29, wherein the determination of
2 whether to reassign the computer processing jobs to different computer processor cores also is
3 based on at least one of a user-defined metric or a workload-defined metric.

4 31. (Previously Presented) The method of claim 29, wherein the throughput metric
5 comprises a number of instructions performed per second.

1 32. (Previously Presented) The computer system of claim 1, wherein the processing
2 capabilities of the computer processor cores are defined by one or more of chip area, available
3 resource, and relative speed of the computer processor cores.

1 33. (Previously Presented) The computer system of claim 1, wherein the performance
2 measurement and transfer mechanism is configured to move the plurality of executing computer
3 processing jobs amongst the plurality of computer processor cores further based on annotations
4 associated with the computer processing jobs.

1 34. (Previously Presented) The computer system of claim 1, wherein the performance
2 measurement and transfer mechanism is configured to further re-assign the plurality of executing
3 computer processing jobs amongst the plurality of computer processor cores by repeatedly
4 performing a test to match the requirements of the plurality of executing computer processing
5 jobs to the processing capabilities of the computer processor cores.

1 35. (Previously Presented) The method of claim 25, wherein assigning the plurality of
2 computer processing jobs amongst the plurality of computer processor cores is further based on
3 annotations associated with the computer processing jobs.

1 36. (Previously Presented) The method of claim 25, further comprising:
2 repeatedly performing a test to match requirements of the computer processing jobs to the
3 processing capabilities of the computer processor cores; and
4 re-assigning the plurality of computer processing jobs amongst the plurality of computer
5 processor cores based on the repeated tests.

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- 1 37. (New) The method of claim 29, wherein the throughput metric indicates total
- 2 system throughput, and wherein the assigning maximizes the total system throughput, as
- 3 indicated by the throughput metric.